



The impact of housing type on temperature-related mortality in South Africa, 1996-2015

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Abstract:

This paper explores how housing modifies the temperature-mortality relationship in the Eastern and Western Cape provinces of South Africa. We estimate dose-response relationships for residents living in each of the five common types of South African housing by combining linear-threshold models for Cape Town with concurrent data on the city's housing composition and expert estimates of how well different types of housing protect against heat and cold. We then apply temperature data to determine provincial-level dose-response relationships, relative risks, attributable fractions and mortality burdens for heat and cold under seven housing scenarios--three past, three future and a scenario of maximum protection. We find that future mortality burdens would be lower under a policy scenario that prioritizes the replacement of informal housing compared to one that prioritizes the replacement of traditional dwellings. In a maximum protection scenario, where everyone lived in houses characteristic of the wealthy, temperature-related mortality could be reduced by over 50% (approximately 5000 deaths annually) in the two provinces combined. These results have relevance to current housing policy but also reinforce the importance of the built environment in mitigating adverse effects of future climate change.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Indoor Environment, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Rural, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Climate Change and Human Health Literature Portal

Non-United States: Africa

African Region/Country: African Country

Other African Country: South Africa

Health Co-Benefit/Co-Harm (Adaption/Mitigation): ☐

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☐

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Mitigation/Adaptation: ☐

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☐

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Population of Concern: A focus of content

Population of Concern: ☐

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type: ☐

format or standard characteristic of resource

Research Article

Timescale: ☐

time period studied

Short-Term (

Vulnerability/Impact Assessment: ☐

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content